

**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of:

**Hassan Mostafavi**

Serial No.: 10/656,478

Filed: September 5, 2003

For: SYSTEMS AND METHODS FOR  
TRACKING MOVING TARGETS AND  
MONITORING OBJECT POSITIONS

Group Art Unit: 2624

Examiner: Allison, Andrae S.

Confirmation No.: 8695

**REPLY BRIEF**

**Mail Stop Appeal Brief - Patents**

Commissioner for Patents

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Appellant submits this Reply Brief in response to the Examiner's mailed on July 8, 2011.

I. Claim Rejections under 35 U.S.C. § 103 based on Hipp and Ito

Claims 1-4, 6-9, 12-14, 18, 20, 23-27, 31-36, and 61-63 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. 2003/0086596 (Hipp) in view of U.S. Patent No. 5,535,289 (Ito).

Claim 1 recites that the act of enhancing is performed such that an image of the moving object is enhanced relative to an image of a relatively stationary object *if* the moving object moves relative to the stationary object (Emphasis Added). Claims 22, 31, and 63 recite similar

limitations. According to page 5 of the Office Action, figure 4a of Hipp allegedly discloses the above limitations. Appellant respectfully disagrees.

Appellant notes that claims 1, 22, 31, and 63 describe that the act of enhancing is *conditioned upon* whether the object moves or not (note the limitation “if”). As discussed in Appellant’s Appeal Brief, Appellant has thoroughly reviewed the entire disclosure of Hipp, and respectfully submits that there is nothing in figure 4a (nor in the rest) of Hipp that discloses or suggests enhancing an image *if* the object moves relative to a stationary object. Rather, figure 4a illustrates an example of radiographic image showing a search model region (see paragraph 41). Furthermore, Hipp teaches identifying a specific vertebrae, and tracking such vertebrae in the images (see paragraph 102). Thus, in Hipp, once the vertebrae is identified, any image enhancement that is performed is always for the specific vertebrae – regardless of whether it moves or not. Therefore, Hipp does not disclose, and in fact *teaches away* from, enhancing an image that is conditioned upon object movement.

Also, as discussed in Appellant’s Appeal Brief, the Examiner’s characterization of Hipp (i.e., that Hipp discloses enhancing a moving object that moves relative to a stationary background) does not meet the above claimed limitations. This is because as discussed, Hipp teaches always enhancing a target object, regardless of whether it moves or not. Thus, just because the target object happens to moves relative to a background, it does not mean that the act of enhancing the target object is *conditioned upon* whether it moves or not. There is simply no disclosure in Hipp that any enhancing act is conditioned upon movement of an object.

According to the Examiner’s Answer, the term “if” does not make the phrase in the claims conditional because the claims do not recite “only if”. It appears that the Examiner is arguing that in order to make the phrase conditional, the word “only” must be inserted.

However, Appellant respectfully notes that the word “if” in the claims clearly indicates that the act of enhancing is *conditioned* whether the object moves relative to a relatively stationary object. There is no requirement that the word “only” must be used in order to make a conditional statement. As discussed, Hipp does not disclose or suggest that any act of enhancing an image is *conditioned upon* whether a moving object moves relative to a relatively stationary object.

Furthermore, according to the Examiner’s Answer, since the claims recite “moving object”, the object is always moving, and therefore the conditional statement adds no meaning to the claims. Appellant respectfully disagrees that the conditional statement adds no meaning to the claims. It appears that the Examiner has ignored the fact that object movement is relative. For example, an object may be moving, but if its background also moves by the same amount, the moving object would appear stationary relative to the background. Thus, just because the claims recite “moving object”, it does not mean that the object will always move “relative” to another object (note that the claims describe that the object movement is “relative” to a “relatively” stationary object).

More importantly, note that claim 1 recites “an image of the moving object is enhanced relative to an image of a relatively stationary object if the moving object moves relative to the stationary object”. Thus, the image enhancement is tied to the “relatively stationary object” (i.e., the same “stationary object” in the conditional statement). For example, if moving object A moves relative to object B, then the image of object A would be enhanced relative to the image of object B. On the other hand, if moving object A does not move relative to object B, then the image of object A would not be enhanced relative to the image of object B. Thus, the conditional statement in the claims clearly add meaning and patentable weight to the claims. As discussed, there is nothing in Hipp that discloses or suggests such feature.

Ito also does not disclose or suggest the above limitations, and is not being relied upon for the disclosure of the above limitations. Since none of the cited references discloses or suggests the above limitations, any purported combination of these references cannot result in the subject matter of claims 1, 22, 31, and 63. For at least the foregoing reasons, Appellant submits that the prima facie case of the § 103 rejection for claims 1, 22, 31, and 63 based on Hipp and Ito has not been established.

## II. Claim Rejections under 35 U.S.C. § 103 based on Holliman and Hipp

Claims 40, 43, 46, 47-49, 50, 53, and 56 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,075,557 (Holliman) in view of Hipp.

Claim 40 recites that the act of determining whether the object has moved comprises using a contrast associated with the first *composite image* (which is obtained by performing a subtraction function) (Emphasis Added). Claims 50 and 53 recite similar limitations.

As discussed in Appellant's Appeal Brief, element 49 (which is the element cited in the Office Action) of Holliman does not disclose or suggest any composite image. Rather, element 49 of Holliman actually discloses template matching between a template and an image area (see figure 12), and therefore, the element 49 does not disclose or suggest a composite image. Also, contrary to the Examiner's characterization of element 49 that it discloses a composite image, Appellant respectfully notes that element 49 in figure 12 actually states "Template matching by finding the position where there is a best correlation between the template and the underlying image area" (Emphasis Added). Thus, the so-called template matching in Holliman actually involves determining a correlation between the template and an image area, and does not involve determining any *composite image*. Notably, the correlation determination results in a

“correlation value” (see element 50 of figure 12), which is a number, and therefore, is clearly not a composite “image.” In addition, “the position” in the cited passage for element 49 clearly indicates that the matching is performed to determine a positional value, which is not a composite image.

On page 24 of the Examiner’s Answer (and also on pages 4 and 17 of the Office Action), column 11, lines 33-38 of Holliman are cited for the disclosure of a “differential movement method”. The Examiner has previously stated that such method “is used to create a composite image between the template and the input image.” In the Advisory Action, the Examiner further emphasized that the template is an “image.” However, even if the template is an image, Holliman teaches comparing such template “image” with an input image to determine a positional value. In particular, as discussed, Holliman discloses template matching that results in a single value, not a composite image. Thus, the differential movement method for the alleged template matching actually results in a value, not an image. This is evidenced by the description in Holliman, describing that the cross-correlation value at the best-matched position resulted from the template matching “would be 1” (c14:20-21), which value is clearly not a composite image. Thus, Holliman clearly does not disclose or suggest the above limitations.

Also as discussed in Appellant’s Appeal Brief, the method disclosed in Holliman, which is allegedly described by the Examiner as the differential movement method, is not for determining any image (much less, a composite image). This is further evidenced by the disclosure on column 11, lines 33-38 of Holliman, which describes that the differential movement method “determines the movement of the target image between consecutive fields and adds this to the position found by local template matching. . .” (Emphasis Added). Thus, the

so-called differential method actually results in a positional movement value, not a composite image.

According to pages 24-25 of the Examiner's Answer, the Examiner now points to paragraph 40 of Hipp (as an alternative to Holliman) for the alleged disclosure of a composite image. As an initial matter, Appellant notes that paragraph 40 of Hipp discloses averaging images to reduce noise. Thus, any composite image that is purported to be disclosed in paragraph 40 of Hipp is clearly not obtained using a subtraction function (note that claim 40 describes that the determining of the composite image involves performing a *subtraction* function). In addition, Appellant respectfully notes that the alleged composite image of Hipp does not, and cannot, provide any contrast for determining whether an object has moved or not (note that claim 40 that a contrast associated with the composite image is used to determine whether the object has moved).

Since Holliman and Hipp do not disclose or suggest the above limitations, any purported combination of these references cannot result in the subject matter of claims 40, 50, and 53. For at least the foregoing reasons, Appellant respectfully submits that the prima facie case of the § 103 rejection for claims 40, 50, and 53 based on Holliman and Hipp has not been established.

### III. Claim Rejections under 35 U.S.C. § 103 based on Hipp and Abe

Claims 64-66 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Holliman in view of Hipp, and further in view of U.S. Patent No. 5,134,472 (Abe).

Claim 64 recites that the act of determining whether the object has moved *does not require a determination of an amount of movement by the object* (Emphasis Added). Claim 65 recites that the means for determining whether the object has moved is configured to determine

whether the object has moved *without determining an amount of movement by the object* (Emphasis Added). Claim 66 recites that the act of determining whether the object has moved *does not require a determination of an amount of movement by the object* (Emphasis Added).

As discussed in Appellant's Appeal Brief, the cited passage (column 1, lines 43-55) of Abe does not disclose or suggest the above limitations. Rather, the cited passage actually discloses determining a moving image that corresponds with a moving object, and does not disclose or suggest the act of determining whether an object has moved or not. In particular, the determining of the moving image, according to the above cited passage of Abe, is based on the assumption that the object has moved. Thus, the method of Abe clearly does not involve the act of determining whether an object has moved.

Also, as discussed in Appellant's Appeal Brief, the cited passage of Abe does not disclose or suggest that an amount of movement of the object is not determined. Note that a mere silence of a limitation by a reference cannot anticipate a negative of such limitation (in other words, just because the cited passage of Abe does not mention object movement, it does not mean that the method of Abe does not involve determining an object movement). This is especially the case with Abe because the cited passage is a summary of the method, which does not provide all the details. Rather, according to the detail description, Abe in fact does disclose using position data in its algorithm (See for example, claim 7 stating "generating at least two position signals corresponding to at least two positions of the moving object."). Also, column 8, line 31 of Abe discloses  $YE_f - YE_n$ , which corresponds to an amount of movement of object from coordinate  $YE_n$  to coordinate  $YE_f$  (see figure 8B).

According to page 25 of the Examiner's Answer, column 7, lines 22-35, and figures 8A and 5G of Abe allegedly disclose determining whether an object has moved without determining

an amount of motion. However, Appellant notes that the cited passage of Abe actually discloses determining an oblique line for profiling an object. There is nothing in the cited passage of Abe that discloses or suggests determining whether an object has moved without determining an amount of motion.

Also, according to page 25 of the Examiner's Answer, the calculation " $YE_T - YE_n$ " in column 8, line 31 of Abe is for correcting a window height, which is for detecting a moving object, and therefore, the calculation does not provide an amount of movement. However, Appellant notes that column 7, lines 62-68 of Abe actually teach determining two positions PO-1, PO-2 of a person with corresponding window frames for each of the positions. Thus, although the calculation " $YE_T - YE_n$ " is for window frames, since the window frames correspond with the different positions of the person, the calculation " $YE_T - YE_n$ " in fact corresponds to an amount of movement of the person. In any case, regardless of how the Examiner characterizes the above calculation of Abe, there is nothing in Abe that discloses or suggests that an amount of movement of the object is not determined.

Since Holliman, Hipp, and Abe do not disclose or suggest the above limitations, any purported combination of these references cannot result in the subject matter of claims 64-66. For at least the foregoing reasons, Appellant submits that the prima facie case of the § 103 rejection for claims 64-66 based on Holliman, Hipp, and Abe has not been established.

#### IV. Other Claim Rejections under 35 U.S.C. § 103

Claims 25 and 26 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Fenster in view of U.S. Patent No. 6,311,084 (Cormack). For at least the same reasons that independent claim 1 is allowable, dependent claims 25 and 26 should also be allowable.



Claim 5 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hipp in view of U.S. Patent No. 6,563,945 (Holm). For at least the same reasons that independent claim 1 is allowable, dependent claim 5 should also be allowable.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hipp in view of U.S. 2004/0077952 (Rafter). For at least the same reasons that independent claim 1 is allowable, dependent claim 10 should also be allowable.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hipp in view of U.S. Patent No. 7,062,078 (Weese). For at least the same reasons that independent claim 1 is allowable, dependent claim 11 should also be allowable.

Claims 15-17, 19, 28-30, and 37-39 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hipp in view of U.S. 2003/0026758 (Baker). For at least the same reasons that independent claims 1, 22, and 31 are allowable, their respective dependent claims 15-17, 19, 28-30, and 37-39 should also be allowable.

Claims 58-60 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hipp in view of U.S. Patent No. 6,526,156 (Black). For at least the same reasons that independent claims 1, 22, and 31 are allowable, their respective dependent claims 58-60 should also be allowable.

Claims 41, 42, 44, 45, 51, 52, 54, and 55 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Holliman in view of Hipp, and further in view of U.S. Patent No. 5,109,435 (Lo). For at least the same reasons that independent claims 40, 50, and 53 are allowable, their respective dependent claims 41, 42, 44, 45, 51, 52, 54, and 55 should also be allowable.

The Commissioner is authorized to charge any fees due in connection with the filing of this document to Vista IP Law Group's Deposit Account No. 50-1105, referencing billing number **VM 03-009-US**.

Respectfully submitted,

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